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## SEARCH REQUEST FORM

### Scientific and Technical Information Center

Requester's full Name: Devesh Khare Examiner #: 77931 Date: 3/27/2003  
Art Unit: 1623 Phone Number 605-1199 Serial Number: 09/775,760  
Mail Box: CM1-8B19 and Bldg/Room Location: CM1-8A13 Results Format Preferred (circle): PAPER DISK E-MAIL

**If more than one search is submitted, please prioritize searches in order of need.**

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Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be search Include the elected species or structures, key words, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: See Bib Data Sheet

Inventors (please provide full names): See Bib Data Sheet

Earliest priority Filing Date: See Bib Data Sheet

*\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please carry out a search for a process for producing polysaccharides ethers (claims 33-49) and a process for producing cellulose ethers (claims 50-51). A copy of the claims is provided.

The Bib Data Sheet which discloses the inventor names, title of the invention, and the earliest priority filing date is also provided.

Note: Please return the copy of the claims with the search.

Thank you.

Mary Jane Ruhi  
Tech. Info. Specialist, STIC  
TC-1600  
CM-1, Room 6A-06  
Phone: 605-1155

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#### STAFF USE ONLY

	Type of Search	Vendors and cost where applicable
Searcher: _____	NA Sequence (#) _____	STN _____
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) _____	Questel/Orbit _____
Date Searcher Picked Up: <u>3/31/03</u>	Bibliographic _____	Dr. Link _____
Date Completed: <u>4/1/03</u>	Litigation _____	_____

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L25 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:43049 HCAPLUS

DOCUMENT NUMBER: 138:91690

TITLE: Recycling of salts in the manufacture of modified polysaccharide ethers from sodium salt stock

INVENTOR(S): Mallon, Charles B.; Vames, John S.  
; Sarlis, John I.; See, Benito;  
Trampe, David M.; Datta, Rathin

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 11 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	US 2003013871	A1	20030116	US 2001-775760	20010202
PRIORITY APPLN. INFO.:				US 2001-775760	20010202
AB	Salts formed during the manuf. of polysaccharide ethers, e.g., sodium nitrate or sodium acetate, are converted to their corresponding acids and bases by means of an elec. current, preferably in combination with a bipolar membrane and suitable cation and/or anion membranes. The acids and bases recovered from the processes can be recycled, thereby avoiding the need to provide for disposal of the salts. Thus, a stream contg. .apprx.8% Na acetate, 0.5% NaOH, 4% glycols, and 0.5% cellulosic material recovered from a synthesis of hydroxyethyl cellulose was processed in a TS-2 ED stack contg. 6 cell pairs made up of AM-1, CM-2 and CURIUM ion-exchange membranes. The pH of the feed was raised to .apprx.11.5 by addn. of 40% NaOH whenever the pH dropped to .apprx.11. As a result of this pH control, .apprx.91% of the acetate was transferred and cell resistance was kept under control. Na acetate concn. in the conc. was .apprx.20%. The product from the ED step was then processed through a column contg. Duolite C-467 to remove multivalent cations. Ca and Mg cations were below 1 ppm in the resulting stream. This product stream was then subjected to water splitting electrodialysis using a 2-compartment TS-2 stack equipped with BP1, CM-1, and CMX ion exchange membranes. The stream processed with no difficulty and produced an acid/salt product contg. about 16% acetic acid and a sodium hydroxide product with a concn. of .apprx.10%. There was no evidence of irreversible membrane fouling and cell voltage remained low (.apprx.1.2 V/cell pair) throughout the run.				
IC	ICM C08B011-00				
	ICS C08B011-12				
NCL	536084000				
CC	43-3 (Cellulose, Lignin, Paper, and Other Wood Products)				
	Section cross-reference(s): 44				
ST	cellulose acetate salt recycling electrolysis bipolar membrane				
IT	Membranes, nonbiological				
	(bipolar; method for recycling of salts in manuf. of modified cellulose ether)				
IT	Polysaccharides, preparation				
	RL: IMF (Industrial manufacture); PREP (Preparation)				
	(ethers; method for recycling of salts in manuf. of modified cellulose ether)				
IT	Electrodialysis				

- Ion exchange membranes  
(method for recycling of salts in manuf. of modified cellulose ether)
- IT Acids, preparation  
Bases, preparation  
RL: IMF (Industrial manufacture); PUR (Purification or recovery); PREP (Preparation)  
(regeneration of; method for recycling of salts in manuf. of modified cellulose ether)
- IT 1398-61-4DP, Chitin, derivs. 9000-01-5DP, Gum Arabic, derivs.  
9000-07-1DP, Carrageenan, derivs. 9000-30-0DP, Guar, derivs.  
9000-65-1DP, Tragacanth, derivs. 9000-69-5DP, Pectin, derivs.  
9002-18-0DP, Agar, derivs. 9004-24-4P, Carboxymethyl cellulose aluminum salt 9004-34-6DP, Cellulose, derivs. 9004-62-0P, Hydroxyethyl cellulose 9005-25-8DP, Starch, derivs. 9005-32-7DP, Alginic acid, derivs. 9012-76-4DP, Chitosan, derivs. 9050-04-8P, Carboxymethyl cellulose calcium salt 9086-60-6P, Carboxymethyl cellulose ammonium salt 11138-66-2DP, Xanthan gum, derivs. 55962-76-0P, Carboxymethyl cellulose lithium salt 66988-45-2P, 2-Sulfoethyl cellulose magnesium salt 124363-50-4P 124363-51-5P, Carboxymethyl sulfoethyl cellulose calcium salt  
RL: IMF (Industrial manufacture); PREP (Preparation)  
(method for recycling of salts in manuf. of modified cellulose ether)
- IT 1310-65-2P, Lithium hydroxide 9000-11-7P, Carboxymethyl cellulose  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(method for recycling of salts in manuf. of modified cellulose ether)
- IT 9088-04-4, Carboxymethyl hydroxyethyl cellulose sodium salt  
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
(method for recycling of salts in manuf. of modified cellulose ether)
- IT 62-54-4, Calcium acetate 139-12-8, Aluminum acetate 142-72-3, Magnesium acetate 7664-41-7, Ammonia, reactions 9004-32-4, Carboxymethyl cellulose sodium salt 9032-46-6, Sulfoethyl cellulose 39277-57-1, Sulfoethyl cellulose sodium salt 117989-25-0, Carboxymethyl sulfoethyl cellulose sodium salt  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(method for recycling of salts in manuf. of modified cellulose ether)
- IT 75-21-8, Ethylene oxide, reactions 75-56-9, Propylene oxide, reactions 26249-20-7, Butylene oxide  
RL: RGT (Reagent); RACT (Reactant or reagent)  
(method for recycling of salts in manuf. of modified cellulose ether)
- IT 59249-79-5, Aciplex K 101  
RL: TEM (Technical or engineered material use); USES (Uses)  
(method for recycling of salts in manuf. of modified cellulose ether)
- IT 64-19-7P, Acetic acid, preparation 1305-62-0P, Calcium hydroxide, preparation 1309-42-8P, Magnesium hydroxide 1310-58-3P, Potassium hydroxide, preparation 1310-73-2P, Sodium hydroxide, preparation 1336-21-6P, Ammonium hydroxide 7647-01-0P, Hydrochloric acid, preparation 7664-38-2P, Phosphoric acid, preparation 7664-93-9P, Sulfuric acid, preparation 7697-37-2P, Nitric acid, preparation  
RL: IMF (Industrial manufacture); PREP (Preparation)  
(regeneration of; method for recycling of salts in manuf. of modified cellulose ether)

L25 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:117084 HCAPLUS

DOCUMENT NUMBER: 132:153513

TITLE: Production of polysaccharide hydroxyalkyl ethers

INVENTOR(S): Mallon, Charles B.; Vames, John S.  
; Sarlis, John Ioannis; See, Benito  
; Trampe, David M.; Datta, Rathin  
PATENT ASSIGNEE(S): Union Carbide Chemicals & Plastics Technology Corp.,  
USA  
SOURCE: PCT Int. Appl., 32 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000008059	A1	20000217	WO 1999-US17597	19990803
W: AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GE, HU, ID, IL, IS, JP, KR, KZ, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, RU, SG, SI, SK, SL, TR, TT, UA, US, UZ, VN, YU, ZA, AM, AZ, BY, KG, KZ, MD, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
CA 2339374	AA	20000217	CA 1999-2339374	19990803
AU 9954643	A1	20000228	AU 1999-54643	19990803
EP 1109834	A1	20010627	EP 1999-940869	19990803
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
BR 9912637	A	20011009	BR 1999-12637	19990803
PRIORITY APPLN. INFO.:				
			US 1998-95263P	P 19980804
			WO 1999-US17597	W 19990803
AB	Processes for the prodn. of polysaccharide ethers, e.g. cellulose hydroxyethyl ether, are disclosed wherein salts formed after the swelling and neutralization of the process, e.g., sodium nitrate or sodium acetate, are converted to their corresponding acids and bases by means of an elec. current, preferably in combination with a bipolar membrane and suitable cation and/or anion membranes. The acids and bases recovered from the processes can be recycled, thereby avoiding the need to provide for disposal of the salts.			
IC	ICM C08B011-20			
CC	43-3 (Cellulose, Lignin, Paper, and Other Wood Products)			
ST	cellulose ether manuf salt recycling; bipolar membrane salt deionization acid recycling; electrodialysis salt sepn cellulose etherification			
IT	Membranes, nonbiological (bipolar; electrodialysis of salts after prodn. of polysaccharide hydroxyalkyl ethers)			
IT	Electrodialysis Etherification Ion exchange membranes (electrodialysis of salts after prodn. of polysaccharide hydroxyalkyl ethers)			
IT	Polysaccharides, preparation RL: IMF (Industrial manufacture); PREP (Preparation) (ethers; electrodialysis of salts after prodn. of polysaccharide hydroxyalkyl ethers)			
IT	9004-62-0P, Cellulose hydroxyethyl ether RL: IMF (Industrial manufacture); PREP (Preparation) (electrodialysis of salts after prodn. of polysaccharide hydroxyalkyl ethers)			

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IT 127-09-3, Sodium acetate  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(electrodialysis of salts after prodn. of polysaccharide hydroxyalkyl  
ethers)  
IT 125935-42-4, Duolite C 467  
RL: TEM (Technical or engineered material use); USES (Uses)  
(ion exchanger; electrodialysis of salts after prodn. of polysaccharide  
hydroxyalkyl ethers)  
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
30.13	584.61

FULL ESTIMATED COST

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE	TOTAL
ENTRY	SESSION
-2.60	-33.20

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SESSION WILL BE HELD FOR 60 MINUTES

STN INTERNATIONAL SESSION SUSPENDED AT 12:40:52 ON 31 MAR 2003